AMENDMENT OF SOLICITATION	I/MODIFICATION OF	CONTRACT	1. C	ONTRACT ID CC	DDE	PAGE OF PAGES
2. AMENDMENT/MODIFICATION NO. 0005	3. EFFECTIVE DATE 9 SEP 98	4. REQUISITION/PURCHAS	SE RE	Q. NO.	5. PROJECT N	NO. (If applicable)
6. ISSUED BY CODE		7. ADMINISTERED BY (If a	ther th	an Item 6)	CODE	
Department of the Army Corps of Engineers Fort Worth District						
8. NAME AND ADDRESS OF CONTRACTOR (No., street,	county, State and ZIP Code)	1	(√)	9A. AMENDMER DACA63-98		ATION NO.
			×	9B. DATED (SE 31 JULY 19	,	
				10A. MODIFICA	ATION OF CON	TRACTS/ORDER
CODE	FACILITY CODE		1	10B. DATED (S	EEE ITEM 13)	
	M ONLY APPLIES TO	AMENDMENTS OF SO	DLIC	ITATIONS		
The above numbered solicitation is amended as set for tended.	orth in Item 14. The hour and d	ate specified for receipt of Off	ers	× is ex	ktended, i	s not ex-
Offers must acknowledge receipt of this amendment prior t	o the hour and date specified in	n the solicitation or as amende	ed, by	one of the followi	ng methods:	
(a) By completing Items 8 and 15, and returning submitted; or (c) By separate letter or telegram which incluMENT TO BE RECEIVED AT THE PLACE DESIGNATED IN REJECTION OF YOUR OFFER. If by virtue of this amer letter, provided each telegram or letter makes reference to	FOR THE RECEIPT OF OFFE	RS PRIOR TO THE HOUR AI	ND DA	TE SPECIFIED N	MAY RESULT	e offer
12. ACCOUNTING AND APPROPRIATION DATA (If requi	red)					
	PPLIES ONLY TO MOD THE CONTRACT/ORD				S,	
A. THIS CHANGE ORDER IS ISSUED PURSUANT TRACT ORDER NO. IN ITEM 10A.	TO: (Specify authority) THE C	HANGES SET FORTH IN ITE	M 14	ARE MADE IN TH	HE CON-	
B. THE ABOVE NUMBERED CONTRACT/ORDER appropriation date, etc.) SET FORTH IN ITEM 14,	S MODIFIED TO REFLECT TO PURSUANT TO THE AUTHO	HE ADMINISTRATIVE CHANG RITY OF FAR 43.103(b).	GES (	such as changes in	paying office,	
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERE	ED INTO PURSUANT TO AUT	HORITY OF:				
D. OTHER (Specify type of modification and authority)						
E. IMPORTANT: Contractor is not,	is required to sign	this document and ret	urn	cc	opies to the i	ssuing office.
14. DESCRIPTION OF AMENDMENT/MODIFICATION (OR The Solicitation for AMMO SUPPLY POINT follows:		_	_			amended as
See Continuation Sheet.						
Except as provided herein, all terms and conditions of the cand effect.	ocument referenced in Item 9A	or 10A, as heretofore change	ed, rer	nains unchanged	and in full force	
15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF	CON-	TRACTING OFFI	CER (Type or pr	int)
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF	AMER	ICA		16C. DATE SIGNED
(Signature of person authorized to sign)		BY(Signatu	ire of (	Contracting Office	er)	

STANDARD FORM 30 (REV. 10-83) Prescribed by GSA FAR (48 CFR) 53.243

# Amendment 0005 continued

- aa. Standard Form 1442, Item No. 13.A.- In the second line, change the Bid Opening date from "11 September 1998" to "18 September 1998".
  Bid Opening time will be 2 p.m., local time.
- a. Specification write-in changes:
  - (1) Section 02545-: Add this Section to the specifications. Section is attached.
  - (2) Page 10440-1, Paragraph 1.2: correct "...types shown on drawings,..." in first sentence to read: "...types indicated in this specification...".
  - (3) Page 10440-2, Paragraph 2.1: Delete the second sentence beginning "In buildings required...".
  - (4) Page 10440-3, Paragraph 2.2: Delete the first sentence beginning "Letters and numbers...".
  - (5) Page 10440-5, Paragraph 3.1: correct "...at locations shown on the drawings,..." in first sentence to read: "...at doors into all rooms". Correct "...mounting heights indicated, and by method shown or specified." in second sentence to "...mounting heights indicated below and by method specified in Paragraph 3.1.1." Correct '...in handicapped-accessible buildings shall..." in third sentence to '...in buildings shall...".
  - (6) Page 15320-8, Paragraph 2.1: correct "...rated net pressure of 1379 psi." in second sentence to read: "...rated net pressure of 1379 kPa (200 psi)."
  - (7) Page 15330-2, Paragraph 1.2: correct "...in accordance with NFPA 13R." in third sentence to read: "...in accordance with NFPA 13."
  - (8) Page 15330-3, Paragraph 1.2.1.1: correct "...streams of gpm..." in first sentence to read: "...streams of <u>500</u> gpm..."
  - (9) 15400–31, Paragraph 3.6: Change "P-15 WATER COOLER DRINKING FOUNTAINS" to "P-6 ELECTRIC WATER COOLER"
  - (10) 15400–31, Delete Paragraph 3.7
  - (11) 15653–13, insert the following paragraphs after Paragraph 2.5.4.1:
- 2.6 SELF-CONTAINED UNITARY AIR-CONDITIONER/HEAT PUMP

Unit shall be a self-contained, blow-through or draw-through, indoor unit with a remote condensing unit. Unit shall be provided with

necessary fans, air filters, internal dampers, mixing boxes, supplemental heat, and cabinet construction as specified in paragraph "System Components". Evaporator or supply fans shall be double-width, double inlet, forward curved, backward inclined, or airfoil blade, centrifugal scroll type. Condenser or outdoor fans shall be the manufacturer's standard for the unit specified and may be either propeller or centrifugal scroll type. Fan and condenser motors shall have open dripproof enclosures. Remote unit shall be as specified in paragraph REMOTE CONDENSER OR CONDENSING UNIT.

## 2.6.1 Air-Conditioning Unit

Unit shall be in accordance with UL 1995. Unit with capacities less than 39.5 kW (135,000 Btuh) shall conform to ARI 210/240 and produce an Energy Efficiency Ratio (EER) of 9.

## 2.6.2 Integral Air Coil

Integral coils shall have nonferrous copper tubes of 10 mm (3/8 inch) minimum diameter with copper or aluminum fins that are mechanically bonded or soldered to the tubes. Casing shall be galvanized steel or aluminum. Contact of dissimilar metals shall be avoided. Coils shall be tested in accordance with ASHRAE 15 at the factory and be suitable for the working pressure of the installed system. Each coil shall be dehydrated and sealed after testing and prior to evaluation and charging. Each unit shall be provided with a factory operating charge of refrigerant and oil or a holding charge. Unit shipped with a holding charge shall be field charged. Separate expansion devices shall be provided for each compressor circuit.

# 2.6.3 Integral Compressor

Compressor shall be capable of continuous operation down to the lowest step of unloading as specified. Compressors of 35 kW (10 tons) and larger shall be provided with capacity reduction devices to produce automatic capacity reduction of at least 50 percent. If standard with the manufacturer, two or more compressors may be used in lieu of a single compressor with unloading capabilities, in which case the compressors will operate in sequence, and each compressor shall have an independent refrigeration circuit through the condenser and evaporator. Each compressor shall start in the unloaded position. Each compressor shall be provided with vibration isolators, crankcase heater, thermal overloads, high pressure safety cutoffs and protection against short cycling.

## 2.6.4 Unit Controls

Unit shall be internally prewired with a 24 volt control circuit powered by an internal transformer. Terminal blocks shall be provided for power wiring and external control wiring. Unit shall have cutoffs for high pressure, and low oil pressure for compressors with positive displacement oil pumps, supply fan failure, and safety interlocks on all service panels. Adjustable-cycle timers shall prevent short-cycling. Multiple compressors shall be staged by means of a time delay. Unit shall be internally protected by fuses or a circuit breaker in accordance with UL 1995.

- b. Drawing write-in changes:
  - (1) Sequence No. 61, Drawing S2, Add the following to Detail 10: "Minimum 8" thickness at keyed joint".
  - (2) Sequence No. 90, Drawing M2, correct the note ending "...Disconnect Switch" to say "...Disconnect Switch. External Static Pressure includes pressure drops for ducts, registers, grilles, dampers and dirty filters."

# SECTION 02545

# GRAVEL SURFACE COURSE 07/98

## 1 - GENERAL

## 1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

# AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 117	(1987) Materials Finer Than 75-um (No. 200) Sieve in Mineral Aggregates by Washing.
ASTM C 131	(1981; R 1987) Resistance to Degradation of Small Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
ASTM C 136	(1984a) Sieve Analysis of Fine and Coarse Aggregates.
ASTM D 75	(1982) Sampling Aggregates.
ASTM D 422	(1963;R 1972) Particle-Size Analysis of Soils.
ASTM D 1556	(1982) Density of Soil In-Place by the Sand-Cone Method.
ASTM D 1557	(1978) Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-lb (4.54-kg) Rammer and 18-in. (475-mm) Drop.
ASTM D 2216	(1980) Laboratory Determination of Water (Moisture) Content of Soil, Rock and Soil Aggregate Mixtures.
ASTM D 3017	(1988) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
ASTM D 4318	(1984) Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
ASTM E 11	(1987) Wire-Cloth Sieves for Testing.

TEXAS STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION (TSDHPT)

TSDHPT-01

(1982) Standard Specifications for Construction of Highways, Streets and Bridges, 1982.

NEW MEXICO STATE HIGHWAY DEPARTMENT

NMSHD-01

(1994) Standard Specifications for Road and Bridge Construction.]

#### 1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL DESCRIPTIONS:

SD-09, Reports

Field Tests; FIO.

Copies of field tests results shall be submitted within 24 hours after the tests are performed.

Calibration Curves; FIO.

Calibration curves and related tests results shall be submitted prior to using the device or equipment being calibrated.

Sources of Materials; FIO.

Source of all materials shall be selected well in advance of the time that materials will be required in the work. Test results from samples shall be submitted for approval not less than 30 days before material is required for the work. Results of laboratory tests for quality control purposes shall be submitted to the Contracting Officer and approved prior to using the material.

SD-13, Certifications

Qualifications; FIO.

The testing laboratory qualifications, commercial or the Contractor's, shall be submitted in accordance with PART 1 paragraph SAMPLING AND TESTING.

#### 1.2 DEFINITION

Degree of compaction: The degree of compaction required is expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 1557, Method D. This will be abbreviated herein as a percent laboratory maximum density.

#### 1.3 SAMPLING AND TESTING

Sampling and testing shall be the responsibility of the Contractor, and shall performed by either an approved commercial testing laboratory, or by the Contractor, subject to approval.

## 1.3.1 Samples

Samples of laboratory testing shall be taken in conformance with ASTM D 75. When deemed necessary, the sampling will be observed by the Contracting Officer.

#### 1.3.2 Tests

## 1.3.2.1 Sieve Analyses

Sieve analysis shall be made in conformance with ASTM C 117, ASTM C 136, and ASTM D 422. Sieves shall conform to ASTM E 11. A minimum of one analysis shall be performed for each 1000 tons or fraction thereof of material placed.

## 1.3.2.2 Liquid Limit and Plasticity Index

Liquid limit and plasticity index shall be determined in accordance with  $ASTM\ D\ 4318$ . One test each for liquid limit and plasticity index shall be performed for each sieve analysis.

## 1.3.2.3 Field Density

Field density tests shall be in accordance with ASTM D 1556 or ASTM D 2922. When ASTM D 2922 is used, the calibration curves shall be checked, and adjusted if necessary, using the sand cone method as described in paragraph "Calibration" of the ASTM publication. ASTM D 2922 results in a wet unit weight of soil, and when using this method, ASTM D 3017 shall be used to determine the moisture content of the soil. The calibration curves furnished with the moisture gages shall be checked, along with the density calibration checks as described in ASTM D 3017. If ASTM D 2922 is used, in-place densities shall be checked by ASTM D 1f556 at least once per lift for each 2,000 square yards of gravel surface course. Calibration curves and calibration test results shall be furnished within 24 hours of the conclusion of the tests. At least one field density test shall be performed for each 1,000 square yards of each layer of gravel surface course. Maximum density at optimum water content will be determined in the laboratory in accordance with ASTM D 1557. One test for moisturedensity relationship shall be run for each type of material or combination of materials.

# 1.3.2.4 Wear Test

Wear tests will be made in conformance with ASTM C 131. One test shall be run per 3,000 square yards of completed gravel surface course. A minimum of one test per aggregate source shall be run.

## 1.3.2.5 Approval of Material

Tentative approval of the source will be based on an inspection by the Contracting Officer. Tentative approval of material will be based

on tests of samples for the specific job. Final approval of both the source and the materials will be based on tests for gradation, liquid limit, and plasticity index, performed on samples taken from the completed and compacted base course.

#### 2 - MATERIALS

## 2.1 MATERIALS

Aggregates shall consist of crushed or uncrushed gravel, crushed stone, shell, sand, soil, or other sound, durable, approved materials processed and blended or naturally combined. Aggregates shall be durable and sound, free from lumps and balls of clay, organic matter, objectionable coatings, and other foreign material. Material retained on the No. 4 sieve shall have a percentage of wear not to exceed 50 percent after 500 revolutions when tested as specified in ASTM C 131. Aggregate shall be reasonably uniform in density and quality, and free from thin and elongated pieces. Aggregates shall have a maximum size of 1-inch and shall be within the limits specified as follows:

#### TABLE

Percentage by Weight Passing
Sieve Designation Square-Mesh Sieve\*

25 mm (1-inch)	100	
13 mm (1/2-inch)	40 -	70
4.75 mm (No. 4)	20 -	50
2 mm (No. 10)	15 -	40
0.425 mm (No. 40)	10 -	30
0.075 mm (No. 200)	5 -	20

The portion of any blended component and of the completed course passing the No. 40 (420-micron)  $\sim$ \ sieve shall have a liquid limit not greater than 32 and a plasticity index not less than 6 and not greater than 12.

\*The table is based on aggregates of uniform specific gravity and the percentages passing the various sieves are subject to appropriate corrections in accordance with ASTM C 127 and ASTM C 128 when aggregates of varying specific gravity are used.

## 2.1.1 Contractor's Option

At the discretion of the Contractor, and with notification to the Contracting Officer, the following gradation may be substituted for that shown in paragraph MATERIALS. The gradation selected will be used for the entire area to receive Gravel Surface Course:

a. For Texas, except Red River Army Depot, TX, Longhorn AAP, TX, and Lone Star AAP, TX:

Percentage by Weight Passing
Sieve Designation Square-Mesh Sieve\*

44 mm (1-3/4") 100
22 mm (7/8") 65 - 90

9	mm	(3/8)	")	50	-	70
4.75	mm	(No.	4)	35	-	55
0.425	mm	(No.	40)	15	_	30

The portion of any blended component and of the completed course passing the No. 40 (420-micron) sieve shall have a liquid limit not greater than 35 and a plasticity index not less than 6 and not greater than 12.

\*The table is based on aggregates of uniform specific gravity and the percentages passing the various sieves are subject to appropriate corrections in accordance with ASTM C 127 and ASTM C 128 when aggregates of varying specific gravity are used. The gradation above conforms to Texas State Department of Highways and Public Transportation Standard Specification for base course, Item 248, Type A, Grade 1.

b. For New Mexico, except Cannon AFB, Holloman AFB, and White Sands M.R.:

Percentage by Weight Passing
Sieve Designation Square-Mesh Sieve\*

25 mm (1")	100
19 mm (3/4")	80 - 100
4.75 mm (No. 4)	30 - 60
2 mm (No. 10)	20 - 45
0.075 mm (No. 200)	3 - 10

\*The table is based on aggregates of uniform specific gravity and the percentages passing the various sieves are subject to appropriate corrections in accordance with ASTM C 127 and ASTM C 128 when aggregates of varying specific gravity are used. The gradation above conforms to New Mexico State Highway Department Standard Specifications for Base Course, and Subbase, Section 304, Class I-B,

At the option of the Contractor, gradation in New Mexico State Highway Department Standard Specifications for Base Course and Subbase, Section 304, Class II-B, may be used instead of the gradation specified hereinbefore. The portion of any blended component and of the completed course passing the No. 40 (420-micron) sieve shall have a liquid limit not greater than 35 and a plasticity index not less than 6 and not greater than 12.

#### 2.2 EQUIPMENT

All plant, equipment, and tools used in the performance of the work covered by this section will be subject to approval by the Contracting Officer before the work is started and shall be maintained in satisfactory working condition at all times. The equipment shall be adequate and have the capability of producing the required compaction, meeting grade controls, thickness control, and smoothness requirements as set forth herein and within the specified time limits.

#### 3 - EXECUTION

## 3.1 OPERATION OF PITS OR QUARRIES

All clearing, stripping, and excavating work involved in the opening or operation of pits or quarries shall be performed by the Contractor. Pits or quarries shall be opened to expose vertical faces of the deposit for suitable working depths. Materials excavated from pits or quarries shall be obtained in successive vertical cuts extending through all exposed strata. All pockets or strata of unsuitable materials overlying or occurring in the deposit shall be wasted as directed. The methods of operating pits or quarries and the processing and blending of the material may be changed or modified by the Contracting Officer when necessary in order to obtain material conforming to specified requirements. Upon completion of work, pits or quarries on Government reservations shall be conditioned to drain readily, and shall be left in a satisfactory condition. Pits or quarries on private lands shall be conditioned in agreement with local laws and authorities.

#### 3.2 STOCKPILING MATERIAL

Prior to stockpiling of materials, storage sites shall be cleared and leveled by the Contractor. All materials, including approved material available from excavation and grading, shall be stockpiled in the manner and at the locations designated. Aggregates shall be stockpiled on the cleared and leveled areas designated by the Contracting Officer so as to prevent segregation. Materials obtained from different sources shall be stockpiled separately.

## 3.2 WEATHER LIMITATIONS

Gravel surface courses shall be constructed when the atmospheric temperature is above 35 degrees F. Areas of completed gravel surface course damaged by freezing, rainfall, or other weather conditions shall be corrected to meet specified requirements.

#### 3.3 PREPARATION OF SUBGRADE

Prior to constructing the gravel surface course, the previously constructed subgrade shall be cleaned of all foreign substances. Surface of the subgrade shall meet the specified compaction and surface tolerances. Subgrade shall conform to the requirements of Section 02225 EARTHWORK. Ruts or soft, yielding spots in the subgrade, areas having inadequate compaction, and deviation of the surface from the requirements set forth herein shall be corrected to line and grade and to all specification requirements. The finished subgrade shall not be disturbed by traffic or other operations and shall be maintained by the Contractor in a satisfactory condition until the gravel surface course is placed.

## 3.4 GRADE CONTROL

The finished and completed gravel surface course shall conform to the lines, grades, and cross sections shown. The lines, grades, and cross sections shown shall be maintained by means of line and grade stakes placed by the Contractor at the site of the work in accordance with the SPECIAL CLAUSES.

## 3.5 MIXING AND PLACING MATERIALS

The materials shall be mixed and placed in such a manner as to obtain uniformity of the material and at a uniform optimum water content for compaction. The Contractor shall make such adjustments in mixing or placing procedures or in equipment as may be directed to obtain the true grades, to minimize segregation and degradation, to reduce or accelerate loss or increase of water, and to insure a satisfactory subbase course.

#### 3.6 LAYER THICKNESS

The compacted thickness of the gravel surface course shall be as indicated. When a compacted layer of six inches is specified, the material may be placed in a single layer; when a compacted thickness of more than six inches is required, no layer shall exceed six inches nor be less than three inches when compacted.

#### 3.8 COMPACTION

Each layer of the gravel surface course shall be compacted with approved compaction equipment. Water content shall be maintained during the compaction procedure at optimum or at the percentage specified by the Contracting Officer. In all places not accessible to the rollers, the mixture shall be compacted with hand operated power tampers. Compaction shall continue until each layer is compacted through the full depth to at least 100 percent maximum density. The Contractor shall make such adjustments in compacting or finishing procedures as may be directed to obtain true grades, to minimize segregation and degradation, to reduce or increase water content, and to insure a satisfactory gravel surface course. Any materials that are found to be unsatisfactory shall be removed and replaced with satisfactory material or reworked to produce a satisfactory material.

## 3.7 EDGES OF GRAVEL SURFACE COURSE

Approved material shall be placed along the edges of the gravel surface course in such quantity to compact to the thickness of the course being constructed. When the course is being constructed in two or more layers, to the thickness of each layer of the course, allow in each operation at least a one-foot width of the shoulder to be rolled and compacted simultaneously with the rolling and compacting of each layer of the gravel surface course, as directed.

## 3.8 SMOOTHNESS TEST

The surface of each layer shall not show deviations in excess of 3/8-inch when tested with a 10-foot straightedge applied parallel with and at right angles to the centerline of the area to be paved. Deviations exceeding this amount shall be corrected by removing material, replacing with new material, or reworking existing material and compacting, as directed.

#### 3.11 THICKNESS CONTROL

The completed thickness of the gravel surface course shall be placed in accordance with the thickness and grade indicated on plans. The thickness of the gravel surface course shall be measured at intervals providing at least one measurement for each 500 square yards or part thereof of gravel surface course. The thickness measurement shall be made by test holes, at least 3 inches in diameter through the course. The completed gravel surface course shall not be more than 1/2-inch deficient in thickness nor more than 1/2-inch above or below

the established grade. Where any of these tolerances are exceeded, the Contractor shall correct such areas by scarifying, adding new material of proper gradation or removing material, and compacting, as directed. Where the measured thickness of the gravel surface course is 1/2-inch or more thicker than shown, the course will be considered as conforming with the specified thickness requirements plus 1/2-inch. The average job thickness shall be the average of the job measurements as specified above but within 1/4-inch of the thickness shown.

## 3.9 MAINTENANCE

The gravel surface course shall be maintained in a satisfactory condition until accepted.